

## Ex - 10.1

**Q1.** How many tangents can a circle have?

**Sol.** There can be infinitely many tangents to a circle.

**Q2.** Fill in the blanks :

- (i) A tangent to a circle intersects it in.....point (s).
- (ii) A line intersecting a circle in two points is called a.....
- (iii) A circle can have ..... parallel tangents at the most.
- (iv) The common point of a tangent to a circle and the circle is called.....

**Sol.** (i) One (ii) Secant  
(iii) Two (iv) Point of contact.

**Q3.** A tangent PQ at a point P of a circle of radius 5 cm meets a line through the centre O at a point Q so that OQ = 12 cm. Length PQ is.

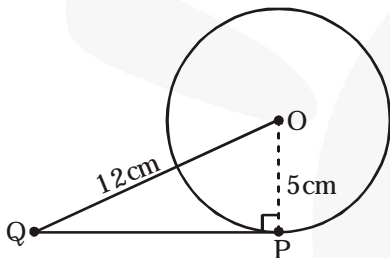
- (1) 12 cm (2) 13 cm
- (3) 8.5 cm (4)  $\sqrt{119}$  cm

**Sol.** O is the centre of the circle. The radius of the circle is 5 cm.

PQ is tangent to the circle at P. Then

$$OP = 5 \text{ cm and } \angle OPQ = 90^\circ.$$

We are given that OQ = 12 cm.



By Pythagoras Theorem, we have

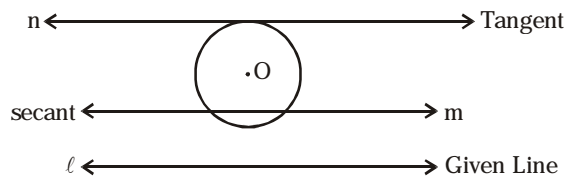
$$\begin{aligned} PQ^2 &= OQ^2 - OP^2 \\ &= (12)^2 - (5)^2 = 144 - 25 = 119 \end{aligned}$$

$$\Rightarrow PQ = \sqrt{119} \text{ cm}$$

Hence, the correction option is (D).

**Q4.** Draw a circle and two lines parallel to a given line such that one is tangent and other a secant to the circle.

**Sol.** We have the required figure, as shown



Here,  $l$  is the given line and a circle with centre  $O$  is drawn.

The line  $n$  is drawn which is parallel to  $l$  and tangent to the circle. Also,  $m$  is drawn parallel to line  $l$  and is a secant to the circle.